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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,286	02/11/2002	Charles Douglas Murphy		2046

7590 05/29/2008
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EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
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2622

MAIL DATE	DELIVERY MODE
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05/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/072,286	Applicant(s) MURPHY, CHARLES DOUGLAS	
	Examiner LUONG T. NGUYEN	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,9,15,16,25,31 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,9,15,16,25,31 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. After carefully review the application, the allowable of dependent claims now written in independent form of independent claims 8, 9, 15, 16, 25, 31, 32 have been withdrawn due to the newly founded references or different alternative interpretation. Upon further consideration, a new non-final office action sets forth below.

2. It should be noted that for the Amendment to the claims, a claim being canceled must be indicated as “canceled;” the text of the claim must not be presented. See MPEP 714.

Drawings

3. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d).

Claim Objections

4. Claim 16 is objected to because of the following informalities:

Claim 16 (line 33), “exposure times” should be changed --exposure times.--.

Appropriate correction is required.

Specification

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The specification fails to provide proper antecedent basis for limitation “high-speed switched-capacitor filtering technique,” which is claimed in claim 31.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 8-9, 16, 25, 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 8 (lines 23-30) recites limitation “means for evaluating exposure properties of said digital images to produce digital image exposure quality estimates; means for using said digital image exposure quality estimates to control said arithmetic means for combining said digital

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images; means for identifying changes in the relative position of an image feature in said digital images of said field of view; means for modifying said changes in said relative position of said image feature when producing said composite digital image,” which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 9 (lines 25-42) recites limitation “means for identifying pixels of said digital images which have digital number values representative of reflection of said active imaging pulse from image features in small areas of said field of view, said pixels being identified as pulse image pixels; in which said active imaging pulse comprises energy in the form of visible light and in which said arithmetic means for combining said digital images uses said pulse image pixels to produce composite pixels which have digital number values representative of reflection of said active imaging pulse from image features in said small areas of said field of view, whereby said machine can be used to produce a composite digital image in which said active imaging pulse appears to illuminate a wide area of said field of view, which is useful in digital photography with a flash, where said active imaging pulse is not able to illuminate all areas of said field of view simultaneously,” which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 16 (lines 23-27) recites limitation “means for acquiring said digital images which includes a first sensor which contributes to said first digital image and not to said second digital

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image; a second sensor which contributes to said second digital image and not to said first digital image,” which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 25 (lines 33-47) recites limitation “identifying pixels of said digital images which have digital number values representative of reflection of said active imaging pulse from image features in small areas of said field of view, said pixels being identified as pulse image pixels; and where said arithmetic combining of said digital images uses said pulse image pixels to produce composite pixels which have digital number values representative of reflection of said active imaging pulse from image features in said small areas of said field of view; whereby said composite digital image can have desired exposure properties that differ from the exposure properties of the digital images from which it is formed and whereby said method can be used to produce a composite image in which said active imaging pulse appears to illuminate a wide area of said field of view, which is useful in digital photography with a flash, where said active imaging pulse is not able to illuminate all areas of said field of view simultaneously,” which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 32 (lines 23-27) recites limitation “acquiring of said digital images, where said acquiring of said digital images includes contribution of a first sensor to said first digital image and not to said second digital image and contribution of a second sensor to said second digital

image and not to said first digital image,” which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 9, 25, 31, 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 (line 28) recites the limitation “said” in “said pixels”. There is insufficient antecedent basis for this limitation in the claim.

Since claim 25 is an improper hybrid claim calling for both an apparatus and the method steps of using the apparatus, claim 25 is indefinite under 35 U.S.C. 112, second paragraph. See MPEP 2173.05 (p). As both an apparatus and method are claimed in the same claim, it is vague and confusing as to what the metes and bounds of the claim set forth.

Since claim 31 is an improper hybrid claim calling for both an apparatus and the method steps of using the apparatus, claim 31 is indefinite under 35 U.S.C. 112, second paragraph. See MPEP 2173.05 (p). As both an apparatus and method are claimed in the same claim, it is vague and confusing as to what the metes and bounds of the claim set forth.

Since claim 32 is an improper hybrid claim calling for both an apparatus and the method steps of using the apparatus, claim 32 is indefinite under 35 U.S.C. 112, second paragraph. See MPEP 2173.05 (p). As both an apparatus and method are claimed in the same claim, it is vague and confusing as to what the metes and bounds of the claim set forth.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claims 25, 31-32 are rejected under 35 U.S.C. 101 because the claimed invention are directed to neither a “process” nor a “machine,” but rather embraces or overlapped two different statutory classes of invention. See MPEP 2173.05 (p).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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13. Claims 15, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mann (US 5,828,793) in view of Tian et al. (US 6,498,576) further in view of Niederkorn et al. (US 6,423,961).

Regarding claim 15, Mann et al. disclose a machine used for exposure adjustment in digital imaging, comprising:

a first set of digital images of a field of view (source image S1, S2, S3, figures 7A-7B, column 10, line 58 – column 11, line 40), said first set comprising at least two different digital images, with a first digital image (image S1, figure 7B) and a second digital image in said first set comprising a third pixel and a fourth pixel (image S3, figure 7B);

arithmetic means for combining said digital images in said first set to produce a composite digital image of said field of view (image S1 and S3 are combined to get target image T, figure 7B, column 10, line 58 – column 11, line 40), with

i. said composite digital image having a first composite pixel having a first composite exposure time (included in target image T, figure 7B);

ii. said composite digital image having a second composite pixel having a second composite exposure time (included in target image T, figure 7B).

Mann fails to specifically disclose a first digital image in said first set comprising a first pixel, said first pixel having a first exposure time and said first pixel comprising a first digital number value that represents signal levels of a sensor that responds to visible light, and said first digital image in said first set comprising a second pixel, said second pixel having a second exposure time. However, Tian et al. teaches four pixels have different exposure times of T, 2T, 4T, 8T for a frame (a digital image), figure 3; column 3, line 60 – column 4, line 50; column 5,

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line 18 – column 6, line 7). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Mann by the teaching of Tian et al. in order to allow the sets of data from various exposure times to be combined properly (column 5, lines 30-35).

Mann and Tian et al. fail to specifically disclose means for acquiring said digital images which includes switched-capacitor means for representing sensor signal levels. However, Niederkorn et al. teaches solid-state imager circuit, which is included in digital camera, utilizes switched-capacitor to achieve an improved signal-to-noise ratio and improved signal gain (figures 1-2, column 1, lines 5-10; column 2, lines 8-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Mann and Tian et al. by the teaching of Niederkorn et al. in order to achieve an improved signal-to-noise ratio and improved signal gain (column 1, lines 5-10).

Regarding claim 31, all the limitations are contained in claim 15; therefore, see Examiner's comments regarding to claim 15; except for the limitation "whereby said composite digital image can have desired exposure properties that differ from the exposure properties of the digital images from which it is formed, and whereby said method can be part of a digital imaging method such as a digital camera method for taking still images or a digital video camera method," which is disclosed in Mann, figure 7B (Mann discloses that the target image T has exposure properties differ from the exposure properties of images S1 and S3).

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14. Claims 16, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mann (US 5,828,793) in view of Tian et al. (US 6,498,576).

Regarding claim 16, Mann et al. disclose a machine used for exposure adjustment in digital imaging, comprising:

a first set of digital images of a field of view (source image S1, S2, S3, figures 7A-7B, column 10, line 58 – column 11, line 40), said first set comprising at least two different digital images, with a first digital image (image S1, figure 7B) and a second digital image in said first set comprising a third pixel and a fourth pixel (image S3, figure 7B);

arithmetic means for combining said digital images in said first set to produce a composite digital image of said field of view (image S1 and S3 are combined to get target image T, figure 7B, column 10, line 58 – column 11, line 40), with

i. said composite digital image having a first composite pixel having a first composite exposure time (included in target image T, figure 7B);

ii. said composite digital image having a second composite pixel having a second composite exposure time (included in target image T, figure 7B);

means for acquiring said digital images (source 202, a digital camera, figure 8, column 11, lines 40-54) which includes a first sensor which contributes to said first digital image and not to said second digital image; a second sensor which contributes to said second digital image and not to said first digital image;

whereby a sensor array (included in digital camera 202, figure 8, column 11, lines 40-54) can be used to acquire said digital images, such as an array of charge-coupled devices in which a first set of charge-coupled devices produce said first digital image and in which a second set of

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charge-coupled devices produce said second digital image, with both sets of charge-coupled devices located on the same chip but allowed to respond to incident energy during different exposure times.

Regarding claim 32, all the limitations are contained in claim 16; therefore, see Examiner's comments regarding to claim 16.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LTN
05/26/08

/LUONG T NGUYEN/
Examiner, Art Unit 2622